UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/160,991	09/25/1998	TZYH-CHYANG CHERNG		6990

26875 7590 07/23/2004

WOOD, HERRON & EVANS, LLP
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202

EXAMINER	
PAYER, HWEI SIU CHOU	
ART UNIT	**PAPER NUMBER**
3724	

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/160,991	CHERNG ET AL.
	Examiner	Art Unit
	Hwei-Siu C. Payer	3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,20-22,24-27 and 29-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16, 20-22, 24-27 and 29-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicants' submission filed on 5-27-2004 has been entered.

Claims Rejection – 35 U.S.C. 103(a)

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 10, 12-14, 16, 20-22, 24, 27 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Maybon (U.S. Patent No. 5,580,472).

Baker discloses a method for forming a cutting die (see Abstract) comprising the steps of cladding a blade material (12) onto a surface (see Fig.3) of a rotatable (see

column 5, lines 10-11) cylindrical die body (10) of a material different and less harder than the blade material (see column 1, lines 48-58) to form an integral blade in a pattern including intersecting portions (24,25, see column 4, lines 65-67) extending outwardly from the die surface (see Fig.6), and wherein the integral blade wholly comprises the blade material cladded by a heat source; and shaping the cladded blade by electrical discharge machining (EDM), milling or grinding (see column 1, lines 61-65 and column 3, lines 50-61) substantially as claimed except Baker is silent about the head source used for cladding.

Maybon teaches the use of a laser beam (28) as a heat source for cladding. Specifically, Maybon teaches cladding a hard material onto a steel substrate (8) by heating an area (32) of the steel substrate (8) with a laser beam (28) and introducing a cladding power (comprising tungsten carbide, nickel, etc., see column 4, lines 55-60) onto the heated area (see column 6, lines 16-18) while heating the area (32) to form a layer of deposit that is compositionally different and of greater hardness than the steel substrate (8). The cladding can be done with one single pass of the laser beam or a number of successive passes depending upon the thickness of the deposit desired (see column 6, lines 31-37). The cladding powder is fed through a feeder that is coaxial with a beam of the laser (see column 5, lines 63-65).

It would have been obvious to one skilled in the art to modify Baker by using a well known heat source such as Maybon's laser beam for cladding a hard material of a

powder form onto the substrate (10) for the advantage of a very fine microstructure and homogeneity of the cladded layer as taught by Maybon.

Claims 10 and 12 each recite the hardness of the die body and of the cladding powder, and a percentage of the tungsten carbide presented in the cladding powder, respectively.

The claimed hardness and the percentage of tungsten carbide in the cladding powder are not patentably distinct over Baker as modified, since the blade material and the die body material selected depend more upon the blade performance criteria and the die body parameters (as evidenced by Applicant's specification on page 15) than on any inventive concept.

2. Claims 8, 9, 11, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) and Maybon (U.S. Patent No. 5,580,472) as applied to claims 1, 10, 13 and 22 above, and further in view of Cox et al. (U.S. Patent No. 5,417,132).

Baker as modified above shows the claimed method steps of forming a cutting die except it lacks the step of heat/cryogenic treating the blade.

Cox et al. teach heat and cryogenic treating blades after the blades are shaped.

It would have been obvious to one skilled in the art to further modify Baker by providing a heat-cryogenic step after the blade is shaped to harden and prolong the life of the blades as taught by Cox et al.

Remarks

Applicants argue Baker does not teach laser cladding of the blade material and Maybon teaches only laser hardfacing of a ridge and teaches against a ridge wholly formed by the laser cladding, and that the combined teachings of the references would only provide a tubular die with a bottom portion of the blade cast with the tubular die body and a tip portion of the blade resurfaced with harder material.

Examiner disagrees. The issue here is not whether Baker teaches laser cladding but rather whether the combination of Baker and Maybon would have suggested to one having ordinary skill in the art to combine Baker's method of forming a cutting die with Maybon's laser cladding step for cladding a more expensive, harder, more abrasive resistant and longer wearing alloy material (containing tungsten carbide) onto a less harder metal. The test for combining references is what the references as a whole would have suggested to one of ordinary skill in the art. In re Sheckler, 168 USPQ 716 (CCPA 1971); In re McLaughlin, 170 USPQ 209 (CCPA 1971); In re Young, 159 USPQ 725 (1968). Non-obviousness cannot be shown by attacking references individually where the rejections are based on a combination of references. In re Keller, 208 USPQ 871 (CCPA 1981).

In the present case, Maybon clearly shows it is well known to clad a harder material onto a less harder material by means of laser cladding for the benefit of an excellent metallurgical bond between the hard alloy material and the underlying relatively softer metal and the advantage of a very fine microstructure and homogeneity

of the cladded layer as taught by Maybon. Further, Baker's integral blade wholly comprises the blade material (see Figs.6-8) cladded by a heat source as claimed. It is not understood why one skilled in the art would cast the bottom portion of Baker's blade and resurface the tip portion of Baker's blade with harder material as Applicants allege.

One skilled in the art who looks into the Maybon reference would have learned the advantage as set forth for cladding a hard alloy material onto an underlying relatively softer material by means of a "laser" as a heat source. One skilled in the art would not limit Maybon's teaching to resurfacing only, as Applicants allege, but to use the teaching of Maybon's laser cladding for other applications as desired.

The declaration of Mr. Hsu under 37 C.F.R. 1.132 filed on 5-27-2004 has been considered. Examiner agrees with Mr. Hsu's comments. However, Baker's method of forming a cutting die as modified above has the integral blade of near net shape and wholly comprises the material cladded by the laser as claimed.

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwei-Siu C. Payer whose telephone number is 703-308-1405. The examiner can normally be reached on Monday through Friday, 7:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 703-308-1082. The fax phone numbers

for the organization where this application or proceeding is assigned are 703-872-9306 for official communications and 703-746-3293 for proposed amendments.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

H Payer
July 22, 2004

H Payer

Hwei-Siu Payer
Primary Examiner